

US-PAT-NO: 6066258

DOCUMENT-IDENTIFIER: US 6066258 A

TITLE: Polynucleotide separations on polymeric separation media

DATE-ISSUED: May 23, 2000

US-CL-CURRENT: 210/635; 210/198.2 ; 210/656 ; 435/6 ; 536/25.4

APPL-NO: 09/ 183123

DATE FILED: October 30, 1998

PARENT-CASE:

CROSS REFERENCE TO RELATED CO-PENDING APPLICATIONS This is a continuation-in-part application of U.S. patent application Ser. No. 09/058,580 filed Apr. 10, 1998 which is hereby incorporated by reference in its entirety. This application is a regular U.S. Patent Application under 35 U.S.C. .sctn.111 (a) and 35 C.F.R. .sctn.1.53(b) and claims priority from the following co-pending, commonly assigned provisional applications, each filed under 35 U.S.C. .sctn.111(b): Ser. No. 60/067,679, filed Dec. 5, 1997 Ser. No. 60/077,875, filed Mar. 13, 1998 Ser. No. 60/089,675 filed Jun. 17, 1998 Ser. No. 60/103,313, filed Oct. 6, 1998.

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Detailed Description Text - DETX:

The molded polymeric rod of the present invention is prepared by bulk free radical polymerization within the confines of a chromatographic column. The

base polymer of the rod can be produced from a variety of polymerizable monomers. For example, the monolithic rod can be made from polymers, including mono- and di-vinyl substituted aromatic compounds such as styrene, substituted styrenes, alpha-substituted styrenes and divinylbenzene; acrylates and methacrylates; polyolefins such as polypropylene and polyethylene; polyesters; polyurethanes; polyamides; polycarbonates; and substituted polymers including fluorosubstituted ethylenes commonly known under the trademark TEFLON. The base polymer can also be mixtures of polymers, non-limiting examples of which include poly(glycidyl methacrylate-co-ethylene dimethacrylate), poly(styrene-divinylbenzene) and poly(ethylvinylbenzene-divinylbenzene). The rod can be unsubstituted or substituted with a substituent such as a hydrocarbon alkyl or an aryl group. The alkyl group optionally has 1 to 1,000,000 carbons inclusive in a straight or branched chain, and includes straight chained, branch chained, cyclic, saturated, unsaturated nonionic functional groups of various types including aldehyde, ketone, ester, ether, alkyl groups, and the like, and the aryl groups includes as monocyclic, bicyclic, and tricyclic aromatic hydrocarbon groups including phenyl, naphthyl, and the like. In a preferred embodiment, the alkyl group has 1-24 carbons. In a more preferred embodiment, the alkyl group has 1-8 carbons. The substitution can also contain hydroxy, cyano, nitro groups, or the like which are considered to be non-polar, reverse phase functional groups. Methods for hydrocarbon substitution are conventional and well-known in the art and are not an aspect of this invention. The preparation of polymeric monoliths is by conventional methods well known in the art as described in the following references: Wang et al. (J. Chromatog. A

699:230 (1994)), Petro et al. (Ana. Chem. 68:315 (1996)),
and the following
U.S. Pat. Nos. 5,334,310; 5,453,185; 5,522,994 (to
Frechet). Monolith or
rod columns are commercially available from Merck & Co
(Darmstadt, Germany).

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